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December 24, 2013

TO ALL AFFECTED AND INTERESTED PARTIES:

This is to provide you with a Notice of Findings regarding the American pika which will be published in the California Regulatory Notice Register on December 27, 2013.

Sincerely,


Sheri Tiemann
Associate Governmental Program Analyst

Attachment

NOTICE OF FINDINGS
American pika
(*Ochotona princeps schisticeps*)

NOTICE IS HEREBY GIVEN that the Fish and Game Commission (Commission), at its May 22, 2013 meeting in Los Angeles, California, made a finding pursuant to Fish and Game Code section 2075.5, that the petitioned action to add the American pika (*Ochotona princeps schisticeps*) to the list of threatened or endangered species under the California Endangered Species Act (CESA)(Fish & G. Code, § 2050 et seq.) is not warranted. (See also Cal. Code Regs., tit. 14, § 670.1, subd. (i)(1).)

NOTICE IS ALSO GIVEN that, at its December 11, 2013, meeting in San Diego, California, the Commission adopted the following findings outlining the reasons for its rejection of the petition.

I.
BACKGROUND AND PROCEDURAL HISTORY

Petition History

The Center for Biological Diversity (Petitioner) submitted a petition to the Commission on August 21, 2007, to list the American pika (*Ochotona princeps*) as a threatened species, pursuant to CESA. As an alternative, the Petitioner asked that the Commission list each of the then recognized five subspecies of the American pika occurring in California as, variously, either endangered or threatened species. The Commission received the petition on August 22, 2007. The Commission referred it for evaluation to the Department on August 30, 2007. On September 12, 2007, the Department asked the Commission to grant the Department an additional 30 days, for a total 120 days, to evaluate the petition pursuant to Fish & Game Code section 2073.5. On October 19, 2007, the Commission granted this request.

The Department evaluated the petition, using the information in that document and other relevant information available at that time, and found that the scientific information presented in the petition was insufficient to indicate that either of the petitioned actions may be warranted. That is, the Commission found in its independent judgment at the time that the petition did not provide sufficient scientific information to indicate that the following actions may be warranted: 1) State listing of the pika as a threatened species, or 2) State listing of any of the five subspecies of the pika occurring in California as, variously, either endangered or threatened species. The Department's review of additional scientific information supported these findings. The Department recommended in its December 21, 2007, evaluation report to the Commission, pursuant to Fish and Game Code section 2073.5, subdivision (a), that the Commission reject the petition.

On April 10, 2008, the Commission determined that the petition provided insufficient information to indicate the petitioned action may be warranted. On June 24, 2009, the Commission set aside its April 10, 2008 decision, and again determined that the petition did not provide sufficient information to indicate the petitioned action may be warranted. The Petitioner challenged the Commission's actions on both occasions in related litigation. As a result of the litigation, the Commission reconsidered Petitioner's petition to list the American pika as threatened or endangered under CESA, including a new submission by Petitioner dated May 15, 2009. The Commission treated the petition, including Petitioner's new submission, as an amended petition pursuant to Fish and Game Code section 2073.7, and also determined the amendment to be substantive. At its February 3, 2011 meeting, the Commission transmitted the amended petition to the Department for review.

The Petitioner submitted another comment letter to the Commission on March 31, 2011. The Commission voted at its May 4, 2011, meeting that the March 31, 2011, letter submitted by the Petitioner amounted to yet another substantive amendment of the petition. The Commission indicated in a memorandum to the Department dated May 13, 2011, that the Department's evaluation report should be submitted to the Commission on or before August 2, 2011. On June 27, 2011, the Department requested that the Commission grant the Department an additional 30 days, for a total 120 days, to evaluate the amended petition, pursuant to Fish and Game Code section 2073.5, subdivision (b). On August 3, 2011, the Commission granted this request.

The Department submitted its initial evaluation of the amended petition to the Commission on August 23, 2011, with a recommendation to reject the petition. At the October 19, 2011, Commission meeting, the Department presented a summary of its evaluation of the petition. At that meeting, the Department Director presented a new recommendation to the Commission, indicating the Commission should accept the petition, designate the American pika as a candidate species under CESA, and direct the Department to conduct a 12-month review of the status of the species in California. The Commission voted to accept the petition based on its determination that there was sufficient information to indicate that the petitioned action may be warranted. On November 11, 2011, the Commission published notice of its findings to accept the amended petition for further review under CESA, as well as notice of the American pika's designation as a candidate species under State law (Cal. Reg. Notice Register 2001, No. 45-Z, p. 1826). With related notice of its candidacy, the CESA prohibition against unauthorized "take" of the American pika is currently in effect. (Fish & G. Code, § 2080, 2085).

Consistent with the Fish and Game Code and controlling regulation, the Department commenced a 12-month status review of the American pika following published notice of its designation as a candidate species under CESA. As part

of that effort, the Department solicited data, comments, and other information from interested members of the public, and the scientific and academic community; and the Department submitted a preliminary draft of its status review for independent peer review by a number of individuals acknowledged to be experts on the American pika, possessing the knowledge and expertise to critique the scientific validity of the report. (Fish & G. Code, §§ 2074.4, 2074.8; Cal. Code Regs., tit. 14, § 670.1, subd. (f)(2).) The effort culminated with the Department's final Status Review of the American pika (*Ochotona princeps schisticeps*) in California (February 25, 2013) (Status Review), which the Department submitted to the Commission at its meeting in Santa Rosa, California, on April 17, 2013. The Department recommended to the Commission based on its Status Review and the best science available to the Department that designating the American pika as a threatened or endangered species under CESA is not warranted. (Fish & G. Code, § 2074.6; Cal. Code Regs., tit. 14, § 670.1, subd. (f).) Following receipt, the Commission made the Department's Status Review available to the public, inviting further review and input. (*Id.*, § 670.1, subd. (g).)

On May 22, 2013, at its meeting in Los Angeles, California, the Commission considered final action regarding the Center's petition to designate American pika as an endangered or threatened species under CESA. (See generally Fish & G. Code, § 2075.5; Cal. Code Regs., tit. 14, § 670.1, subd. (i).) In so doing, the Commission considered the petition, as amended, public comment, the Department's 2008 Candidacy Evaluation Report, the Department's 2013 Status Review, and other information included in the Commission's administrative record of proceedings. Following public comment and deliberation, the Commission determined, based on the best available science, that designating American pika as an endangered or threatened species under CESA is not warranted. (Fish & G. Code, § 2075.5(1); Cal. Code Regs., tit. 14, § 670.1, subd. (i)(2).) At the same time, the Commission directed its staff in coordination with the Department to prepare findings of fact consistent with the Commission's determination for consideration and ratification by the Commission at a future meeting.

Species Description

The American pika is a small mammal in the Order Lagomorpha. Until recently, the American pika was considered to consist of 356 subspecies belonging to five distinct evolutionary lineages. The five formerly recognized California subspecies are now regarded as one subspecies, *Ochotona princeps schisticeps*. The American pika occurs in most of the western United States and the Canadian provinces of Alberta and British Columbia. In California, it is found from the Oregon border south through the Cascade region to Tulare and Inyo counties in the Sierra Nevada. The American pika inhabits the range above the

mid-montane conifer belt in California's Sierra Nevada and other high elevation mountain ranges. Although often considered to be rare below 2,500 m elevation in California, American pikas have been reported at multiple locations below that elevation in the southern portion of their range, and in northeastern California they have been found as low as 1,250 m in elevation. The American pika primarily lives in high-elevation patches of talus with adjacent herbaceous or shrub vegetation, as well as in old lava formations.

American pikas are predominantly diurnal, although during hot weather they may adjust their daily activity pattern to avoid excessive heat. American pikas are territorial and their populations in many locations function as meta-populations. Dispersal by American pika from a population is generally believed to be more likely at high-elevation (cooler) sites than at warmer low-elevation sites. The American pika is herbivorous and engages in both feeding and haying (haypiling) while foraging. Haying is the caching of food for later consumption. The American pika harvests herbaceous vegetation or tall grasses for storage in hay piles, which allows them to survive harsh winters.

American pikas behaviorally thermoregulate in response to high ambient temperatures by reducing activity on warm days or during mid-day hours. The American pika does not hibernate but remains active throughout the winter, using cover to abate the effects of extremely cold temperatures and to access stored food. High temperature is a primary factor controlling the initial dispersal success of juveniles, primarily at low-elevation sites. In general, temperatures within the rock matrix of talus fields have been found to be lower and less variable than on the surface of the talus in the summer. Generally, winter temperatures within talus are warmer than the external air.

The population size for the American pika in California is uncertain but, based on the best available scientific information, it appears well-distributed and relatively stable.

Federal Status

The American pika is not currently listed as endangered or threatened nor is it a candidate for listing under the federal Endangered Species Act. In October 2007, the Center petitioned the U.S. Fish and Wildlife Service (Service) to list the American pika and conduct a status review of each of the recognized subspecies of American pika. The Service advised the Center that the petition could not be addressed at that time because existing court orders and settlement agreements for other listing actions required nearly all of the listing funding. Subsequently, the Center filed a notice of intent to sue over the Service's failure to publish a petition finding. The Service then entered into a settlement agreement requiring the Service to submit a petition finding to the Federal Register by May 1, 2009, and to submit a status review finding to the Federal Register by February 1, 2010. On February 10, 2010, the Service published the results of its status review, in which

it concluded that the American pika did not meet the criteria for listing under the federal Endangered Species Act (USFWS 2010). The Service acknowledged that the American pika is potentially vulnerable to the impacts of climate change in portions of its range, but that the best available scientific information indicated that the species will be able to survive despite higher temperatures and that there is enough suitable high elevation habitat to prevent the species from becoming threatened or endangered.

II. STATUTORY AND LEGAL FRAMEWORK

The Commission has prepared these findings as part of its final action under CESA regarding the Center's petition to designate American pika as an endangered or threatened species under CESA. As set forth above, the Commission's determination that listing American pika is not warranted marks the end of formal administrative proceedings under CESA prescribed by the Fish and Game Code and controlling regulation. (See generally Fish & G. Code, § 2070 et seq.; Cal. Code Regs., tit. 14, § 670.1.) The Commission, as established by the California Constitution, has exclusive statutory authority under California law to designate endangered, threatened, and candidate species under CESA. (Cal. Const., art. IV, § 20, subd. (b); Fish & G. Code, § 2070.)¹

The CESA listing process for American pika began in the present case with the Center's submittal of its petition to the Commission in September 2007. (Cal. Reg. Notice Register 2007, No. 38-Z, p. 1572.) The regulatory process that ensued is described above in some detail, along with related references to the Fish and Game Code and controlling regulation. The CESA listing process generally is also described in some detail in published appellate case law in California, including

- *Mountain Lion Foundation v. California Fish and Game Commission* (1997) 16 Cal.4th 105, 114-116;
- *California Forestry Association v. California Fish and Game Commission* (2007) 156 Cal.App.4th 1535, 1541-1542;
- *Center for Biological Diversity v. California Fish and Game Commission* (2008) 166 Cal.App.4th 597, 600; and
- *Natural Resources Defense Council v. California Fish and Game Commission* (1994) 28 Cal.App.4th 1104, 1111-1116.

The "is not warranted" determination at issue here for American pika stems from Commission obligations established by Fish and Game Code section 2075.5.

¹ The Commission, pursuant to this authority, may add, remove, uplist, downlist, or choose not to list any plant or animal species to the list of endangered or threatened species, or designate any such species as a candidate for related action under CESA. (See also Cal. Code Regs., tit. 14, § 670.1, subd. (i)(1)(A)-(C) and (2).) In practical terms, any of these actions is commonly referred to as subject to CESA's "listing" process.

Under this provision, the Commission is required to make one of two findings for a candidate species at the end of the CESA listing process; namely, whether the petitioned action is warranted or is not warranted. Here with respect to American pika, the Commission made the finding under section 2075.5(1) that the petitioned action is not warranted.

The Commission was guided in making this determination by various statutory provisions and other controlling law. The Fish and Game Code, for example, defines an endangered species under CESA as a native species or subspecies of a bird, mammal, fish, amphibian, reptile or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, over exploitation, predation, competition, or disease. (Fish & G. Code, § 2062.)

Similarly, the Fish and Game Code defines a threatened species under CESA as a native species or subspecies of a bird, mammal, fish, amphibian, reptile or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. (*Id.*, § 2067.)

Likewise as established by published appellate case law in California, the term "range" for purposes of CESA means the range of the species within California. (*California Forestry Association v. California Fish and Game Commission, supra*, 156 Cal. App.4th at p. 1540, 1549-1551.)

The Commission was also guided in making its determination regarding American pika by Title 14, section 670.1, subdivision (i)(1)(A), of the California Code of Regulations. This provision provides, in pertinent part, that a species shall be listed as endangered or threatened under CESA if the Commission determines that the species' continued existence is in serious danger or is threatened by any one or any combination of the following factors:

1. Present or threatened modification or destruction of its habitat;
2. Overexploitation;
3. Predation;
4. Competition;
5. Disease; or
6. Other natural occurrences or human-related activities.

Fish and Game Code section 2070 provides similar guidance. This section provides that the Commission shall add or remove species from the list of endangered and threatened species under CESA only upon receipt of sufficient scientific information that the action is warranted. Similarly, CESA provides policy direction not specific to the Commission per se, indicating that all state agencies, boards, and commissions shall seek to conserve endangered and threatened species and shall utilize their authority in furtherance of the purposes

of CESA. (Fish & G. Code, § 2055.) This policy direction does not compel a particular determination by the Commission in the CESA listing context. Yet, the Commission made its determination regarding American pika mindful of this policy direction, acknowledging that “[l]aws providing for the conservation of natural resources’ such as the CESA ‘are of great remedial and public importance and thus should be construed liberally.” (*California Forestry Association v. California Fish and Game Commission*, *supra*, 156 Cal. App.4th at pp. 1545-1546, citing *San Bernardino Valley Audubon Society v. City of Moreno Valley* (1996) 44 Cal.App.4th 593, 601; Fish & G. Code, §§ 2051, 2052.)

Finally in considering these factors, CESA and controlling regulations require the Commission to actively seek and consider related input from the public and any interested party. (See, e.g., *Id.*, §§ 2071, 2074.4, 2078; Cal. Code Regs., tit. 14, § 670.1, subd. (h).) The related notice obligations and public hearing opportunities before the Commission are also considerable. (Fish & G. Code, §§ 2073.3, 2074, 2074.2, 2075, 2075.5, 2078; Cal. Code Regs., tit. 14, § 670.1, subds. (c), (e), (g), (i); see also Gov. Code, § 11120 et seq.) All of these obligations are in addition to the requirements prescribed for the Department in the CESA listing process, including an initial evaluation of the petition and a related recommendation regarding candidacy, and a 12-month status review of the candidate species culminating with a report and recommendation to the Commission as to whether listing is warranted based on the best available science. (Fish & G. Code, §§ 2073.4, 2073.5, 2074.4, 2074.6; Cal. Code Regs., tit. 14, § 670.1, subds. (d), (f), (h).)

III.

FACTUAL AND SCIENTIFIC BASES FOR THE COMMISSION’S FINDING

The factual and scientific bases for the Commission’s finding that designating American pika as an endangered or threatened species under CESA is not warranted are set forth in detail in the Commission’s administrative record of proceedings. The evidence in the administrative record in support of the Commission’s determination includes, but is not limited to, the Department’s 2008 Candidacy Evaluation Report and 2013 Status Review, and other information specifically presented to the Commission and otherwise included in the Commission’s administrative record as it exists up to and including the Commission meeting in Los Angeles, California, on May 22, 2013, and up to and including the adoption of these findings.

The Commission finds the substantial evidence highlighted in the preceding paragraph, along with other evidence in the administrative record, supports the Commission’s determination that the continued existence of American pika in the State of California is not in serious danger of becoming extinct or threatened by one or a combination of the following factors:

1. Present or threatened modification or destruction of its habitat;

2. Overexploitation;
3. Predation;
4. Competition;
5. Disease; or
6. Other natural occurrences or human-related activities.

The Commission also finds that the same evidence constitutes sufficient scientific information to establish that designating American pika as an endangered or threatened species under CESA is not warranted. The Commission finds in this respect that the American pika is not in serious danger of becoming extinct throughout all, or a significant portion, of its range. Similarly, the Commission finds that, although the dynamics and effects of climate change due to global warming are real, the American pika is not presently threatened with extinction and it is also unlikely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by CESA.

The following Commission findings highlight in more detail some of the scientific and factual information and other evidence in the administrative record of proceedings that support the Commission's determination that designating American pika as an endangered or threatened species under CESA is not warranted:

1. The primary threat to the continued existence of the species is considered to be future climate change, which may reduce the area available as suitable habitat for American pika in California. However, some data suggest the American pika may be able to contend with a generally warmer and drier future climate.
2. The species is currently widely distributed in California and is thought to be common where it occurs. Although climate change has occurred and will continue to occur, the American pika has existed in western North America for millennia, during a period characterized by repeated periods of warming and cooling, suggesting the species may be able to persist during projected future changes.
3. The overall population size for the American pika in California is unknown and cannot be accurately determined because of the lack of available data on population numbers, densities, and trends over time across their range. However, resurveys of distribution at historically-occupied pika sites have been conducted in several areas in California, as well as in the Great Basin ranges of Nevada. In California, these studies have found pikas occupying some but not all of the historical sites. More study is necessary to fully understand the American pika's re-colonization behavior of historical sites. A recent meta-analysis of several resurvey projects found that the amount of talus habitat in the vicinity of the historical site had the

strongest ability to predict whether pikas still occupied the site. Elevation was another significant factor, with low elevation sites more likely to have lost pikas than high elevation sites. However, the extent of low elevation talus habitat available to American pika in California is not presently known.

4. The climate modeling studies reviewed by the Commission as part of its analysis of the pika CESA listing petition, as amended, do not typically consider aspects of a species' ecology other than the apparent correlations of species occurrence with (typically) coarse-scale climate variables. Nor do the models consider the capacity of the species to behaviorally or physiologically adapt to different climatic conditions. Additionally, the studies do not consider changes in human adaptation that could influence the model projected climate change. In sum, a number of survey studies on American pikas in California and elsewhere have explored the relationships between pika occurrence and climate variables. Although climate has been implicated in recent loss of pikas from some historically-occupied sites in some studies, other studies have not found such a pattern.
5. Because of the American pika's thermoregulatory characteristics, it has been suggested that several climate change effects could threaten the continued existence of the species, including mortality and stress associated with increasing temperatures; changes in foraging and dispersal behavior; mortality and stress associated with more extreme cold in the winter; changes in nutrient and water availability in forage plants; increased competition or predation; and combined effects of all these factors. However, American pika have been found in low-elevation areas (for example, Lava Beds National Monument) and studies on talus temperatures show ameliorative benefits of the talus ecology for the American pika (warmer in winter, cooler in summer), both of which suggest that American pika may be sufficiently adaptable to rising temperatures to persist despite global warming.
6. Other potential indirect effects on pikas due to climate change, such as how climate change may affect disease dynamics and predator-prey relations are presently unknown. Livestock grazing near talus habitat may affect pika habitat and cause pikas to change their foraging behavior. Mining may disturb or directly injure pikas. However, these potential impacts are not clearly understood.
7. The Commission considered factors such as overexploitation, predation, competition, and disease to not be a serious threat to the American pika currently or in the foreseeable future.

IV.

ADDITIONAL CONSIDERATIONS INFORMING THE COMMISSION'S FINAL DETERMINATION

The Commission's determination that designating American pika as an endangered or threatened species under CESA is not warranted is informed by various additional considerations. In general, the Fish and Game Code contemplates a roughly 12-month long CESA listing process before the Commission, including multiple opportunities for public and Department review and input, and peer review specifically whenever possible. (See generally Fish & G. Code, § 2070 et seq.; Cal. Code Regs., tit. 14, § 670.1.) The CESA listing process for American pika, in contrast, is approaching the 7-year mark. This length of time is not unusual compared to other recent CESA listing actions by the Commission.² What the length of time does underscore in the present case, however, is the depth, breadth, and complexity of the scientific and legal issues that the Commission has considered in making its final determination regarding American pika. This section highlights some of those issues to more fully document the Commission's final determination in the present case.

From the initial receipt of the Center's petition in August 2007 through the Commission's decision in May 2013 that listing is not warranted, the Commission received numerous comments and other significant public input regarding the status of American pika from a biological and scientific standpoint, and with respect to the petitioned action under CESA, including the listing process generally. Similarly, the Commission received many comments focusing on the current and historical status of American pika throughout all or a significant portion of its range. The Commission also received comments regarding the status of American pika under the federal Endangered Species Act (ESA) (16 U.S.C. § 1531 et seq.). Finally, the Commission received various comments and other important information regarding a number of scientific issues related to the status of American pika in California. The Commission, as highlighted below, was informed by and considered all of these issues, among others, in making its final determination that designating American pika as an endangered or threatened species under CESA is not warranted. (Fish & G. Code, § 2075.5(1); Cal. Code Regs., tit. 14, § 670.1, subd. (i)(2).)

SCIENTIFIC DETERMINATIONS REGARDING THE STATUS OF THE AMERICAN PIKA IN CALIFORNIA

CESA directs the Department to prepare this report regarding the status of the American pika in California based upon the best scientific information. Key to the Department's related analyses are relevant factors highlighted in regulation.

² For example, with respect to the California tiger salamander, a species recently designated as endangered or threatened under CESA, the Commission received the petition on January 30, 2004, and adopted findings that listing is warranted on May 20, 2010. (See Cal. Reg. Notice Register 2004, No. 9-Z, p. 270; Cal. Reg. Notice Register 2010, No. 23-Z, p. 855).

Under the pertinent regulation, a "species shall be listed as endangered or threatened ... if the Commission determines that its continued existence is in serious danger or is threatened by any one or any combination of the following factors: (1) present or threatened modification or destruction of its habitat; (2) overexploitation; (3) predation; (4) competition; (5) disease; or (6) other natural occurrences or human-related activities." (Cal. Code Regs., tit. 14, § 670.1 (i)(1)(A)).

Also key from a scientific standpoint are the definitions of endangered and threatened species, respectively, in the Fish and Game Code. An endangered species under CESA, for example, is one "which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, over exploitation, predation, competition, or disease." (Fish & G. Code, § 2062.) A threatened species under CESA is one "that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of special protection and management efforts required by [CESA]." (Id., § 2067.)

Present or Threatened Modification or Destruction of Habitat

Projections of the effects human-caused climate change would have on the American pika are predicted based on climatic models and models of future habitat extent. These models indicate a possible reduction in the amount of suitable habitat for the American pika in California by the end of this century (2100). However, some of the models that predict American pika habitat failed to predict currently occupied habitat. Alternatively, some of the reduction in climatically suitable habitat conditions for the American pika in California may be ameliorated by behavioral and physiological mechanisms. In summary, the best available scientific information suggests a substantial reduction in the geographic range of the American pika in California could occur by 2100, but the effect on the species' future existence at that time is currently uncertain. A generally warming climate with more extreme weather conditions may have several impacts to American pika populations, including reduced opportunities for successful dispersal between habitat islands, reduced overwinter survival (reduced winter snowpack will reduce insulation cover and create harsher winter conditions or, conversely, heavier snowpack from extreme winters could delay spring emergence of forage vegetation), and these factors may interact with others to increase population impacts. There is significant, current uncertainty about the degree of continued warming and the effect of this continued warming on the ability of the American pika to persist in California during and after the timeframe current modeling suggests climate change may pose a significant threat to the species (2100 and after). In short, the Commission considers future habitat impacts of projected climate change may be a threat to the continued existence of the American pika in California by the end of the century, but not

until then at the earliest based on the best scientific information currently available.

Overexploitation

The American pika in California is designated as a nongame mammal, and therefore may not be legally taken. (See, e.g., Cal. Code Regs., tit. 14, § 472). There is no indication that American pikas have been harvested for recreational or commercial purposes. A few individual American pikas have been captured over the past several years for research purposes; only one mortality from these studies has occurred. The Commission determines based on the best scientific information available, there is not a threat to the species' continued existence due to overexploitation.

Predation

American pikas are subject to predation by a variety of native predators and are adapted to contend with predation pressure by several characteristics, such as vigilant behavior, central-place foraging with good escape cover, and relatively moderate reproduction rate. It is possible climate change may affect the predator-prey relationships for the pika, either by allowing additional predator species to move into areas occupied by the pika or by negatively impacting some current pika predators by altering their preferred prey. Climate change may force individual pikas to contend with greater predation risk while foraging or dispersing, or may relieve them of some predation risk. The Department concluded, and the Commission so finds, that the effects of predation as a threat to pika populations are uncertain, as are any climate change change-induced effects on predation, to American pikas. There is not sufficient scientific evidence to indicate that predation is a current threat to the continued existence of the species in California or that it will be in the foreseeable future.

Competition

The Commission does not consider native competitors to the American pika in California to be a threat to the continued existence of the species. However, climate change may allow additional competitor species to move into areas occupied by the American pika and to impact those American pika populations. Additional or new competitors may reduce the fitness of individual pikas and reduce the viability of American pika populations where the competitors invade. However, it is also possible that some native competitors will be adversely affected by climate change, thus relieving American pikas of some competition from these species. The Department concluded, and the Commission so finds, that the effect and magnitude of climate change on species competition with American pikas are currently unknown. There is not sufficient, current scientific evidence to indicate that competition is a threat to or that it will be a threat in the foreseeable future to the continued existence of the American pika in California.

Disease

Diseases occur naturally in American pika populations. Health assessments of American pika populations in California are just beginning. As with the other factors, however, it is possible that climate change may facilitate the transmission or increase the virulence of diseases currently endemic in American pika populations. The Commission could not currently determine the magnitude of the risks to pika populations from disease, nor from the interaction of climate change and disease. The best scientific information available to the Department and the Commission from disease studies in other pika populations suggests this factor is not currently a threat nor will it be a threat in the foreseeable future to the continued existence of the species in California.

Other Natural Occurrences or Human-related Activities

The Commission does not consider mining or grazing to be significant threats to the continued existence of the American pika in California. Other human-related activities contribute to global climate change (e.g. fossil fuel emissions, land use practices, agricultural practices), and therefore indirectly threaten American pika populations in California through the habitat, competition, predation, and disease pathways discussed above. Most human-related (anthropogenic) contributions to global climate change are projected to increase in the future. The Commission finds that anthropogenic contributions to climate warming may pose a threat to the species by the end of the 21st century, but that the species is not currently in serious danger of becoming extinct throughout all or a significant portion of its range in California and the same is true of the foreseeable future.

Summary of Key Findings

Based on the criteria described above, the best scientific information available to the Commission indicates the American pika is not currently in serious danger of becoming extinct in California in the next few decades, nor at any time by the end of the century even if existing climate change models and the currently predicted trajectory of suitable pika habitat in California comes to fruition at that time. At the present time, in contrast, the species is widespread through its known range in California and the uncertainty of the models precludes the ability of the Commission to categorically know or state the danger of the threat to the species. Models predict reduction in American pika habitat and therefore populations, distribution, and abundance, but not extinction.

It will be imperative for the Department and for the conservation community to study and monitor the distribution and abundance of the American pika over the next few decades, and as climate change models become more data driven, to be able to better assess the foreseeable future. Such monitoring will ultimately inform the Department from a scientific basis whether the American pika is

trending toward a serious danger of becoming extinct, or not. In that regard, the Department has made a number of future management recommendations, including:

- Habitat-specific demographic information for the American pika, as per Kreuzer and Huntly (2003), should be collected by the Department and its partners. Such studies would inform conservation planning for the American pika by allowing better evaluation of habitat areas needing protection, as well as adaptation planning for climate change.
- Comprehensive genetic studies of American pika populations in California and adjacent states should be conducted to provide a better understanding of the genetic structure of the *schisticeps* subspecies. Such information is essential for conservation planning.
- Research and consider implementing management activities that would ensure that American pika populations persist despite projected climate change impacts.
- Continue and expand monitoring efforts for pika populations and their habitat as part of comprehensive climate change monitoring and adaptation planning for high-elevation small mammal communities in California.³
- Assess and recommend measures to reduce potential significant impacts to American pika populations associated with activities such as mining and livestock grazing, as part of the environmental review process for such projects.
- Assess the greenhouse gas emissions associated with proposed projects and activities reviewed under the California Environmental Quality Act. Such assessments and associated recommendations should be made by the Department as part of its general approach to the issue of climate change.
- Adaptation planning for climate change impacts on California's wildlife is an on-going task of the Department. See the California Climate Change

³ The Department, along with federal and academic partners, led the formation in 2009 of the California Pika Consortium (CPC). The CPC consists of pika researchers, wildlife and land management agency representatives, and non-government organization members with its major purpose of facilitating communication on issues related to the American pika and other high-elevation small mammals in California. The group has generally met once or twice a year since its first meeting in 2009 to share information, prioritize research topics, discuss standardized field techniques, and to visit natural and human-made pika sites in the eastern Sierra Nevada and western Great Basin. The CPC served as the model for the formation of the North American Pika Consortium (NAPC), which pursues similar goals throughout the geographic range of pikas in North America; CPC members are actively engaged with NAPC activities. These two organizations provide a forum for discussions of American pika biology, conservation, and adaptation planning. The Department will continue to rely on the CPC for information related to the American pika.

Adaptation Strategy (California Natural Resources Agency 2009 and DFG's Vision Document, DFG Climate Science Web Page) for more information. The Department, along with its diverse group of stakeholders, is also actively working to address climate change adaptation actions for fish, wildlife, and habitats across the state. Integrating climate change considerations into Department functions, management activities, and conservation planning efforts such as the state Wildlife Action Plan, are serious undertakings by the Department that have placed it on the path towards successfully addressing climate change and the many challenges it presents.

- Complete the Mammal Species of Special Concern update to determine whether the American pika should be designated as a Species of Special Concern.⁴ Conduct the follow-up climate-change analysis for the American pika and other at-risk mammal taxa currently funded by a State Wildlife Grant. Depending on the results of these analyses, the American pika may be among those species prioritized for additional research and monitoring if funding is available.

⁴ "Species of Special Concern" (SSC) is a Department administrative designation intended to alert biologists, land managers, and others to a species' declining status and to encourage them to afford these species additional management consideration. SSCs are defined as species, subspecies, or distinct populations of an animal native to California that currently satisfies one or more of the following (not necessarily mutually exclusive) criteria: is extirpated from the State or, in the case of birds, in its primary seasonal or breeding role; is listed as federally-, but not State-, threatened or endangered; meets the State definition of threatened or endangered but has not been formally listed; is experiencing, or formerly experienced, serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status; has naturally small populations exhibiting high susceptibility to risk from any factor(s), that if realized, could lead to declines that would qualify it for State threatened or endangered status (Comrack et al. 2008).

The Mammal Species of Special Concern (MSSC) list had been in a state of ad hoc revision since the list was established in 1986 (Williams 1986). The American pika is not currently designated as an MSSC. The MSSC list is now undergoing a formal update and revision using an objective, criterion-based method developed by the Department (see Shuford and Gardali 2008 for a recent published example of the current method). As part of the update process, the American pika is being evaluated, scored, and ranked using eight criteria along with all other mammalian taxa naturally occurring in California. It is too early in the evaluation process to ascertain whether the American pika will be on the updated MSSC list. Additional evaluation of climate change impacts to California mammals, including the American pika, will be made in a follow-up analysis for the MSSC project.

Finally, the issues highlighted in this section represent only a portion of the complex issues aired and considered by the Commission during the CESA listing process for American pika. The issues addressed here in these findings represent some, but not all of the information, issues, and considerations affecting the Commission's final determination. Other issues aired before and considered by the Commission are addressed in detail in the Commission's administrative record of proceedings.

V. FINAL DETERMINATION BY THE COMMISSION

The Commission has weighed and evaluated all information and inferences for and against designating American pika as an endangered or threatened species under CESA. This information includes scientific and other general evidence in the Center's 2007 petition, as amended, the Department's 2008 Candidacy Evaluation Report and 2013 Status Review, and the Department's related recommendations based on the best available science, written and oral comments received from members of the public, various public agencies, and the scientific community; and other evidence included in the Commission's administrative record of proceedings. Based upon the evidence in the administrative record the Commission has determined that the best scientific information available indicates that the continued existence of American pika in California is not in serious danger or threatened in the foreseeable future by present or threatened modifications or destruction of the species' habitat, overexploitation, predation, competition, disease, or other natural occurrences or human-related activities; stated another way, the Commission did not find sufficient evidence of endangerment at this time. (See generally Cal. Code Regs., tit. 14, § 670.1, subd. (i)(1)(A); Fish & G. Code, §§ 2062, 2067.) The Commission finds for the same reason that there is not sufficient scientific information at this time to indicate that the petitioned action is warranted. (See *Id.*, § 2070.) The Commission finds, as a result, that designating American pika as an endangered or threatened species under CESA is not warranted and that, with adoption of these findings, American pika for purposes of its legal status under CESA shall revert to its status prior to the filing of the Center's 2007 petition. (*Id.*, § 2075.5(2); Cal. Code Regs., tit. 14, § 670.1, subd. (i)(2).)

Fish and Game Commission

Dated: December 11, 2013

Sonke Mastrup
Executive Director